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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,872	12/13/2000	Yigal Katzir	140/01667	9284
23373	7590	03/04/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			NGHIEM, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/735,872

Applicant(s)

KATZIR ET AL.

Examiner

Michael P. Nghiem

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-8, 10-25, 29-54, 61, 66, 67 and 69-71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 61, 67, 69 and 70 is/are allowed.
- 6) ☒ Claim(s) 5-8, 10-25, 29-54 and 71 is/are rejected.
- 7) ☒ Claim(s) 66 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11-24-04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

The Amendment filed on February 11, 2005 has been acknowledged.

### ***Claim Objections***

1. Claims 49 and 66 are objected to because of the following informalities:

- claim 49, "longer" (line 6) should be – shorter --; "some of" (last line) should be deleted.

- claim 66 should depend on claim 61 instead of cancelled claim 65.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 49-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The attribute of the modulating signal (line 12) is not defined. Which attribute?

The remaining claims are also rejected under 35 U.S.C. 112, second paragraph, for being dependent upon a rejected base claim.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5-8, 10-25, 29-48, and 71 are rejected under 35 U.S.C. 102(e) as being anticipated by Katzir et al. (US 6,275,514).

Regarding claims 5, 29, and 71, Katzir et al. discloses an apparatus and method (Fig. 1) for recording an image on a photosensitive surface (35), comprising:

- a pulsed light source (18) that produces pulsed light (20);
- a data signal source (column 1, lines 23-24) that provides data signals (Katzir et al. uses the same modulator as Gross, US 5,309,178, column 8, lines 65-67; modulator 20 receives data signals from data signal sources, Fig. 1a);

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- a modulator (55) that receives the pulsed light and the data signals (column 1, lines 23-24) and selectively modulates the pulsed light with a modulating signal responsive to the data signals (Fig. 1, Fig. 1a of Gross) at a data rate that is higher than a pulse repetition rate of the pulsed light (Abstract, lines 5-8);

- a scanner that scans the modulated pulsed light over the surface (column 16, lines 29-31), said modulated pulsed light being delivered pulse by pulse to spatially overlapping regions of the surface to build up a pixelized pattern (overlapping beams 48, 54, 56' converge on overlapping regions 33, Fig. 2b).

Regarding claims 6 and 30, Katzir et al. discloses that the pulsed light source is a line source and wherein the modulator spatially modulates the line (column 5, lines 3-4).

Regarding claims 7 and 31, Katzir et al. discloses that the modulator independently modulates different sections of the line at the data rate (column 14, lines 14-16).

Regarding claims 8 and 32, Katzir et al. discloses that the modulator is operative to provide modulation that is asynchronous with the pulses (column 14, lines 17-18).

Regarding claims 10 and 33, Katzir et al. discloses that wherein the modulated light scans over the surface in a first direction and wherein the surface moves in a direction perpendicular to the direction of scanning such that the surface is illuminated by a raster scan (column 15, lines 10-14).

Regarding claims 11 and 34, Katzir et al. discloses that wherein the photosensitive surface is a photoresist (column 15, lines 15-16).

Regarding claims 12 and 35, Katzir et al. discloses that wherein the pulsed light comprises a laser beam (Abstract, lines 3-4).

Regarding claims 13 and 36, Katzir et al. discloses that the pulsed light is produced utilizing a pulsed light generator comprising: a beam generator that produces an initial pulsed light beam having an initial pulse repetition rate; and a pulse repetition rate multiplier, which receives the initial pulsed light beam and produces at least one pulsed light beam having a higher pulse repetition rate than the initial rate (Abstract, lines 3-8).

Regarding claims 14 and 37, Katzir et al. discloses a second repetition rate multiplier that receives an output beam from the repetition rate multiplier and produces an output beam having a repetition rate higher than the repetition rate of the beam that it receives (column 4, lines 29-33).

Regarding claims 15 and 38, Katzir et al. discloses that wherein the first repetition rate multiplier and the second multiplication rate multiplier each double the repetition rate (column 4, lines 34-38).

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Regarding claims 16 and 39, Katzir et al. discloses that the higher pulse repetition rate is twice the initial pulse rate (column 5, lines 45-46).

Regarding claims 17 and 40, Katzir et al. discloses that the higher pulse repetition rate is three times the initial pulse rate (column 5, lines 45-46).

Regarding claims 18 and 41, Katzir et al. discloses that the higher pulse repetition rate is four times the initial pulse rate (column 5, lines 45-46).

Regarding claims 19 and 42, Katzir et al. discloses that the higher pulse repetition rate is greater than four times the initial pulse rate (column 5, lines 45-46).

Regarding claims 20 and 43, Katzir et al. discloses that the initial pulsed light beam is a laser beam (column 5, line 47).

Regarding claims 21 and 44, Katzir et al. discloses that wherein the beam generator comprises: a pulsed laser operating at an initial laser frequency; and a laser frequency converter that increases the laser frequency to produce the light beam (column 13, lines 32-34).

Regarding claims 22 and 45, Katzir et al. discloses that the pulsed laser comprises a mode locked laser (column 16, lines 5-6).

Regarding claims 23 and 46, Katzir et al. discloses that the pulsed laser is an infrared laser (column 16, lines 7-8).

Regarding claims 24 and 47, Katzir et al. discloses that the initial pulsed light beam is a UV laser beam (column 7, line 19).

Regarding claims 25 and 48, Katzir et al. discloses that the power contained in the higher repetition rate pulses is substantially equal to the power of the initial pulsed light beam (column 14, lines 49-51).

***Allowable Subject Matter***

4. Claims 49-54 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

5. Claim 66 would be allowable if rewritten to overcome the objection set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. Claims 61, 67, 69, and 70 are allowed.



***Reasons For Allowance***

7. The combination as claimed wherein the modulating signal is operative to modulate at least two successive pulses and wherein an attribute of the modulating signal changes between at least some of the two successive pulses (claim 49) or the non-linear medium is an LBO crystal (claim 61) is not disclosed, suggested, or made obvious by the prior art of record.

***Response to Arguments***

8. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MICHAEL NGHIEM**  
**PRIMARY EXAMINER**

Michael Nghiem

February 23, 2005